MATERIALS RESEARCH LABORATORY LTD.

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CONTRACT REPORT NO. OSQ84-00170

March 28, 1985

Dr. H.F. Steger
Energy Mines and Resources
CANMET, Mineral Sciences Laboratories
555 Booth Street
Ottawa, Ont.
K1A 0G1

Re: DSS file no. 02SQ. 23440-4-9155-1

Dear Dr. Steger:

Many thanks for awarding us the contract on "Certification of Zn/Al Alloys". We have enclosed the results obtained in our laboratory as outlined in our proposal of July 9, 1984. We have also enclosed our invoice for performing the work. We will be pleased to answer any questions regarding the detailed methodology or will be prepared to provide any additional information at any time.

Many thanks again.

Yours sincerely,

MATERIALS RESEARCH LABORATORY LTD.

Sudesh K. Singh

Sudesh K. Singh, Ph.D.
President

SKS/we
Encl.

C.C. John W. McGill, Senior Sciences Procurement Officer, DSS, Canada

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MICROMEDIA

DETERMINED ELEMENT CONCENTRATIONS
IN THE RECOMMENDED REFERENCE ALLOYS
NZA-1 TO NZA-7

Reference Material	Element	Method of Analysis	Subsamples	Determined Concentration
NZA-1	Al	X.R.F.	1	28.74%
			2	28.89%
			3	28.78%
			4	28.79%
			5	28.87%
	Cu	Atomic Absorption	1	1.39%
			2	1.49%
			3	1.56%
			4	1.42%
			5	1.43%
	Mg	Atomic Absorption	1	0.022%
			2	0.021%
			3	0.024%
			4	0.026%
			5	0.025%
	Fe	Atomic Absorption	1	0.068%
			2	0.063%
			3	0.064%
			4	0.063%
			5	0.067%
	Cd	Atomic Absorption	1	0.023%
			2	0.025%
			3	0.024%
			4	0.024%
			5	0.022%
	Pb	Atomic Absorption	1	6.3 ppm
			2	5.2 ppm
			3	6.1 ppm
			4	5.7 ppm
			5	6.1 ppm
	Sn	Atomic Absorption	1	47.8 ppm
		Hydride Generation	2	52.5 ppm
			3	48.6 ppm
			4	51.8 ppm
			5	52.5 ppm

Reference Material	Element	Method of Analysis	Subsamples	Determined Concentration
NZA-2	Al	X.R.F.	1	22.84%
			2	23.56%
			3	23.39%
			4	23.39%
			5	23.48%
	Cu	Atomic Absorption	1	2.70%
			2	2.64%
			3	2.61%
			4	2.64%
			5	2.64%
	Mg	Atomic Absorption	1	0.032%
			2	0.036%
			3	0.036%
			4	0.038%
			5	0.035%
	Fe	Atomic Absorption	1	0.025%
			2	0.024%
			3	0.034%
			4	0.030%
			5	0.029%
	Cd	Atomic Absorption	1	66.0 ppm
			2	63.2 ppm
			3	62.9 ppm
			4	63.3 ppm
			5	63.4 ppm
	Pb	Atomic Absorption	1	58.9 ppm
			2	63.2 ppm
			3	59.2 ppm
			4	63.5 ppm
			5	63.5 ppm
	Sn	Atomic Absorption	1	37.8 ppm
		Hydride Generation	2	38.2 ppm
			3	36.9 ppm
			4	38.2 ppm
			5	38.3 ppm

Reference Material	Element	Method of Analysis	Subsamples	Determined Concentration
NZA-3	Al	X.R.F.	1	26.32%
			2	25.94%
			3	25.91%
			4	25.95%
			5	26.22%
	Cu	Atomic Absorption	1	1.80%
			2	1.73%
			3	1.74%
			4	1.75%
			5	1.74%
	Mg	Atomic Absorption	1	37.8 ppm
			2	39.2 ppm
			3	39.4 ppm
			4	42.2 ppm
			5	39.1 ppm
	Fe	Atomic Absorption	1	0.078%
			2	0.073%
			3	0.076%
			4	0.079%
			5	0.070%
	Cd	Atomic Absorption	1	89.4 ppm
			2	89.7 ppm
			3	82.2 ppm
			4	82.9 ppm
			5	87.8 ppm
	Pb	Atomic Absorption	1	29.5 ppm
			2	29.7 ppm
			3	29.5 ppm
			4	30.5 ppm
			5	29.7 ppm
	Sn	Atomic Absorption	1	44.8 ppm
		Hydride Generation	2	46.7 ppm
			3	44.8 ppm
			4	46.8 ppm
			5	46.7 ppm

Reference Material	Element	Method of Analysis	Subsamples	Determined Concentration
NZA-4	Al	X.R.F.	1	26.82%
			2	26.64%
			3	26.68%
			4	26.84%
			5	26.74%
	Cu	Atomic Absorption	1	2.34%
			2	2.19%
			3	2.18%
			4	2.25%
			5	2.16%
	Mg	Atomic Absorption	1	0.007%
			2	0.006%
			3	0.006%
			4	0.007%
			5	0.009%
	Fe	Atomic Absorption	1	0.044%
			2	0.044%
			3	0.045%
			4	0.041%
			5	0.040%
	Cd	Atomic Absorption	1	50.2 ppm
			2	50.2 ppm
			3	44.1 ppm
			4	44.2 ppm
			5	45.5 ppm
	Pb	Atomic Absorption	1	38.8 ppm
			2	39.1 ppm
			3	46.2 ppm
			4	38.8 ppm
			5	39.6 ppm
	Sn	Atomic Absorption	1	72.4 ppm
		Hydride Generation	2	69.5 ppm
			3	78.4 ppm
			4	75.6 ppm
			5	72.6 ppm

Reference Material	Element	Method of Analysis	Subsamples	Determined Concentration
NZA-5	Al	X.R.F.	1	10.92%
			2	10.85%
			3	10.82%
			4	10.79%
			5	10.88%
	Cu	Atomic Absorption	1	1.003%
			2	1.018%
			3	0.956%
			4	0.995%
			5	0.994%
	Mg	Atomic Absorption	1	0.086%
			2	0.086%
			3	0.084%
			4	0.106%
			5	0.088%
	Fe	Atomic Absorption	1	0.011%
			2	0.009%
			3	0.009%
			4	0.009%
			5	0.013%
	Cd	Atomic Absorption	1	0.013%
			2	0.012%
			3	0.012%
			4	0.011%
			5	0.011%
	Pb	Atomic Absorption	1	5.4 ppm
			2	5.6 ppm
			3	5.3 ppm
			4	5.8 ppm
			5	5.4 ppm
	Sn	Atomic Absorption	1	17.3 ppm
		Hydride Generation	2	13.5 ppm
			3	16.2 ppm
			4	13.5 ppm
			5	17.3 ppm

Reference Material	Element	Method of Analysis	Subsamples	Determined Concentration
NZA-6	Al	X.R.F.	1	7.59%
			2	7.55%
			3	7.54%
			4	7.51%
			5	7.59%
	Cu	Atomic Absorption	1	2.93%
			2	2.78%
			3	2.83%
			4	2.92%
			5	2.92%
	Mg	Atomic Absorption	1	9.8 ppm
			2	7.5 ppm
			3	10.5 ppm
			4	8.8 ppm
			5	8.7 ppm
	Fe	Atomic Absorption	1	0.023%
			2	0.022%
			3	0.034%
			4	0.020%
			5	0.022%
	Cd	Atomic Absorption	1	0.019%
			2	0.017%
			3	0.018%
			4	0.017%
			5	0.018%
	Pb	Atomic Absorption	1	0.086%
			2	0.092%
			3	0.081%
			4	0.088%
			5	0.081%
	Sn	Atomic Absorption	1	43.2 ppm
		Hydride Generation	2	48.5 ppm
			3	39.4 ppm
			4	48.7 ppm
			5	47.9 ppm

Reference Material	Element	Method of Analysis	Subsamples	Determined Concentration
NZA-7	Al	X.R.F.	1	12.94%
			2	12.92%
			3	12.87%
			4	12.92%
			5	12.88%
	Cu	Atomic Absorption	1	0.226%
			2	0.185%
			3	0.216%
			4	0.216%
			5	0.208%
	Mg	Atomic Absorption	1	0.062%
			2	0.085%
			3	0.062%
			4	0.062%
			5	0.064%
	Fe	Atomic Absorption	1	5.4 ppm
			2	2.9 ppm
			3	3.3 ppm
			4	5.5 ppm
			5	3.2 ppm
	Cd	Atomic Absorption	1	8.8 ppm
			2	9.2 ppm
			3	8.6 ppm
			4	8.6 ppm
			5	8.8 ppm
	Pb	Atomic Absorption	1	88.4 ppm
			2	87.6 ppm
			3	79.8 ppm
			4	82.6 ppm
			5	87.5 ppm
	Sn	Atomic Absorption	1	0.010%
		Hydride Generation	2	0.010%
			3	0.011%
			4	0.014%
			5	0.010%